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ABSTRACT

This junior high teaching unit on architecture occupations is one in a series of career guidebooks developed by Project CHOICE (Children Have Options in Career Education) to provide the classroom teacher with a source of career-related activities linking classroom experiences with the world of work. The unit follows a typical format that includes the rationale, goals, performance objectives, instructional strategy, evaluation, and suggested instructional materials (including books, films, and filmstrips). The remainder of the unit is comprised of instructional activities designed to help students appreciate the contribution which architects make to the appearance and functional effectiveness of the environment. The unit is one of five in the series on fine arts and humanities occupations and is also classified in the cluster of industrial and construction occupations. (For these and junior high units in other career clusters, see CE 025 738-765.) (LRA)

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NEW YORK DEPARTMENT OF SCHOOLS

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Project CURE
#17

A CAREER EDUCATION UNIT FOR JUNIOR HIGH SCHOOL

RECOMMENDATIONS

(Industrial and Construction Occupations Career Cluster)
(Fine Arts and Humanities Career Cluster)

02-005 154

September, 1977

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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FOREWORD

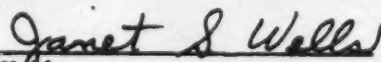
Project CHOICE: Children Have Options in Career Education, is an Exemplary Project from the San Diego City School District, which has been adapted, with ESEA Title IV-C funding, for Kern County Schools.

Through Project CHOICE, units have been developed to provide the classroom teacher with a source of career-related activities linking classroom experiences with the world of work. All students, regardless of their post-high school plans, share an equal need for career awareness, decision making skills, and other elements of career education. This goal can be accomplished if all teachers and counselors "fit" the appropriate units where they best apply in the curriculum.

We are indebted to the San Diego City School District, and the Project CHOICE staff, for developing and field testing the original units.

For their excellent work in re-writing the units in order to adapt them for use in Kern County Schools, we wish to recognize:

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Industrial and Construction Occupations Career Cluster
Fine Arts and Humanities Career Clusters

ARCHITECTURE

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Industrial and Construction Occupations Career Cluster
Fine Arts and Humanities Career Clusters

ARCHITECTURE

RATIONALE

Victor Hugo described architecture as "the great handwriting of the human race." In the twentieth century the "handwriting" has been getting increasingly careless.

As population expands and cities grow rapidly, our environment is deteriorating. It is urgent that young people develop an awareness of the role of architecture in our society along with the responsibilities of architects and understand their training and the problems they face. In reaching this understanding, students will prepare themselves to appreciate the contribution which architects make to the appearance and functional effectiveness of our environment.

GOALS

- To encourage experiences that will increase the students' perception of architecture.
- To introduce problems in space, structure, and form, the basic elements in architecture.
- To reveal how the community depends on the services of the architect and his/her responsibility to the community.
- To show the need for architects now and in the future as the designers of our environment.
- To gain an understanding of the skills, education and other requirements necessary to pursue a career in architecture.
- To become aware of the tasks performed by an architect, his/her working conditions and job opportunities.

PERFORMANCE OBJECTIVES

By the end of the unit the student will be able to:

- Identify characteristics of architecture as a career through discussions and activities.
- Complete a project dealing with space, structure, and form, the basic elements in architecture.
- Develop a tentative set of personal criteria for judging architecture.

- Identify the skills, education and background necessary to pursue a career in architecture.
- Demonstrate an awareness of the tasks and problems confronting the architect.
- Recognize whether he is both interested in and suited to a career in architecture.
- Identify occupational opportunities for good architects.

INSTRUCTIONAL STRATEGY

This curriculum unit has been designed for use by a class, small group, or individual student. So that the materials can be easily duplicated for individualized instruction, all learning activities are written for the student. Activities designated ALL are intended to provide factual information, those designated YOUR CHOICE have been included to provide experiential activities which draw upon this background. This technique also provides an opportunity to put decision-making skills into action in the classroom, a process important to career development.

EVALUATION

It is important to evaluate the effectiveness of this unit in terms of the learning that takes place as well as reactions of the learner. A sample inventory has been provided, which can serve to both introduce the unit and assess its effectiveness, or the teacher may wish to develop his/her own.

SUGGESTED INSTRUCTIONAL MATERIALS

Films: Challenge of Urban Renewal	Homes Around the World
Changing City	Inquiry into the Growth of
Cities Have No Limits	American Cities
Cosmopolis, Parts I and II	Rise of the American City

AVAILABLE IN INSTRUCTIONAL RESOURCES CENTER: OFFICE OF THE KERN COUNTY SUPERINTENDENT OF SCHOOLS

(Please preview first, to be certain of suitability for specific students and situations).

Films:	MP	2399	Movement to the Dream
	MP	985	Architecture West
	MP	2532	Adventures in Perception (9-12)
	MP	3187	Frank Lloyd Wright (9-12)
	MP	909	House
	MP	6231	Medieval Architecture (7-12)
	MP	6428	Roman Wall (7-12)
	MP	6430	Rosary of the Missions (6-12)

COMMUNITY RESOURCES

Dave Cartnel; Architect; 832 - 8122; Bakersfield.

Mr. Mueller; Architectural Illustrators; 324 - 4791; Bakersfield.

Industrial and Construction Occupations Career Cluster
Fine Arts and Humanities Career Clusters

ARCHITECTURE

INSTRUCTIONAL ACTIVITIES

ALL:

1. PRETEST

Take the written pretest to find out how much you already know about the field of architecture as a career.

2. EXPLORE THE CAREER

What is an architect's job like? How does he/she train for the job? Find out the answers to these and other questions about the field of architecture as a career. Use the fact sheet "What Is An Architect?" as well as materials from your school's library or Career Center to help you; take notes on the Career Information Worksheet which follows.

3. A LOOK AT OUR CITIES

Watch films which depict the possibilities of architecture as it existed yesterday, and as it exists today. What makes good design in a building? What kinds of buildings last for a long time?*

Find pictures of buildings which to you represent principles of good architecture. Be prepared to defend them on the basis of what you learned from the films. Create a bulletin board or other display from pictures contributed by various students.

*To the teacher: See suggestions in the Instructional Materials section.

WHAT IS AN ARCHITECT?

Architects are designers or builders of anything, including golf courses, but the term is most often used to describe people who design, draw plans for, and supervise building construction. Their goal is to design structures which are safe, useful and pleasing in appearance. Architects also work with other professionals, such as engineers, urban planners, and landscape architects in the designing of cities and towns and in the planning of an overall physical environment.

Most self-employed architects plan and design a wide variety of structures, ranging from homes to churches, hospitals to airports. Like other professions, however, architecture is becoming more specialized, so an architect may confine activities to small areas of the field other than designing buildings, such as city planning, naval architecture, landscape architecture, marine architecture, research and teaching, to name a few.

When an architect receives a commission to design a building, he/she meets with the client to discuss the purposes, requirements and cost limitations of the structure, as well as the client's preferences as to style and plan. Then follow hundreds of decisions considering not only the requirements of the building, but also local and state building codes, zoning laws, fire regulations and other ordinances.

For example, in planning a school, the architect must decide, among other things, the amount of corridor and staircase space needed so students can move easily from one class to another; the type and arrangement of storage space; and the location, size and interior arrangements of the classrooms, laboratories, lunchroom, gymnasium, and administrative offices.

The architect makes preliminary drawings of the structure and, with the client's OK, makes a final design with all details. This is then translated into working drawings, which show the exact dimensions of every part of the structure and the location of all equipment. The engineer's drawings are coordinated with the architect's working drawings. The architect then assists the client in selecting a building contractor and in negotiating the contract between them, and he/she acts as the client's advisor and representative in dealings with the contractor. As construction proceeds, the architect makes periodic visits to the construction site to see if the design is being followed and that materials specified in the contract are being used. The work is not completed until the project is finished, all required tests are made and guarantees are received from the contractor. Even after a project is completed the architectural firm may be retained by the client to advise on maintenance, expansion, and remodeling of the facilities.

CAREER INFORMATION WORKSHEET

1. Using the fact sheet "What Is An Architect?" select a specialty in the field of architecture which you would like to learn more about. Name this job.

2. List as many duties related to this occupation as you can.

a. _____	b. _____
c. _____	d. _____
e. _____	f. _____

3. What personal qualifications should you have in order to be successful in this career?

4. What training is required in order to qualify for this job?

5. Briefly describe the working conditions of this career, i.e., working hours, location where work is performed, people you would work with and be associated with, etc.

6. Describe, in a few sentences, what you would do during an average working day in this job.

7. What do you think the opportunities for advancement would be in this career?

8. In what ways do you think this career is important to society?

9. List several things you think you would like about this career.

10. List what you would dislike about this career.

YOUR CHOICE:

4. TOWERS

Ask your school or public librarian to help you find the story of Simon Rodia and the Watts' Towers which he built using junk materials he collected over a period of more than thirty years. He showed tremendous creativity in designing and building these towers, with no formal training.

Using only rectangles and squares of cardboard, create your own towers. Make your structures suitable for living or work space; provide openings (windows or skylights) for light. Work on small units first, then consider the vertical aspect: place units on top of each other to create a tower or skyscraper. These must always balance. When you have finished, group your structures with those of other students to create a "community." You may wish to place your "community" on a base and create landscaping for it.

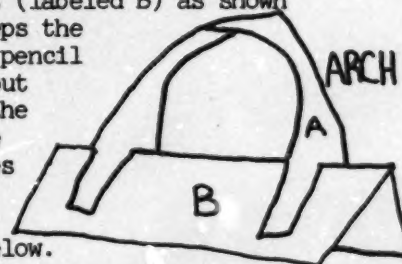
5. EXPERIMENT WITH BUILDING METHODS

Throughout history humans have been clever builders. They have developed shelters which are both sound and attractive; many of these are based on knowledge about arches and triangles.

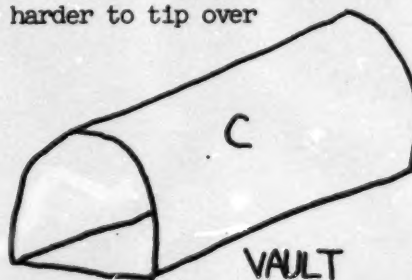
Use the patterns included with this activity to cut pieces of construction paper for the following building experiments.

Building with arches—

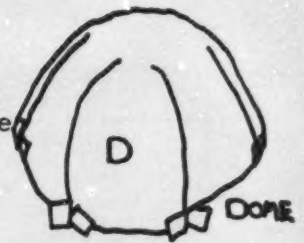
- a. Assemble the arch (labeled A) and the support (labeled B) as shown by the drawing to the right. The support keeps the ends from springing apart. If you balance a pencil on the arch, it will hold up the weight without collapsing. The arch carries the weight of the pencil or eraser down to the support. In the same way the arch of a railroad bridge carries the weight of the train to the ground.



- b. Now assemble the part (labeled C) as shown below. This kind of roof is called a "vault." It is very much like an arch, but harder to tip over by pushing from the end.

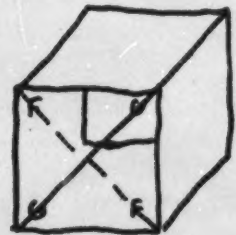
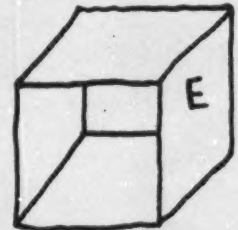


- c. Now assemble the part (labeled D) as shown on page 8. This kind of roof is called a "dome." The dome is often found in nature, probably because it supports weight so well. An egg is like a dome; it supports the full weight of the hen. Yet, like a dome, it is weak if force is applied at one point rather than all across its surface.



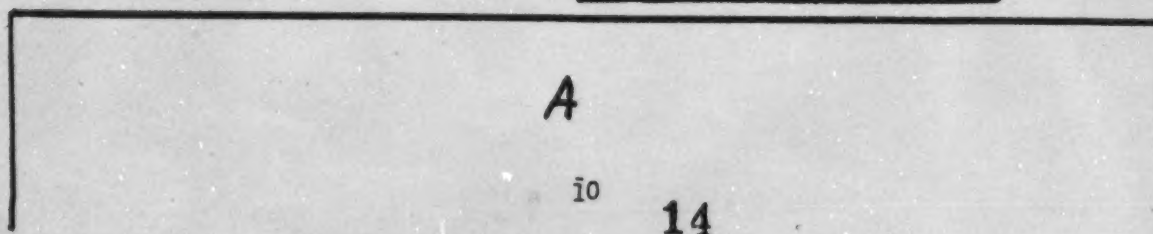
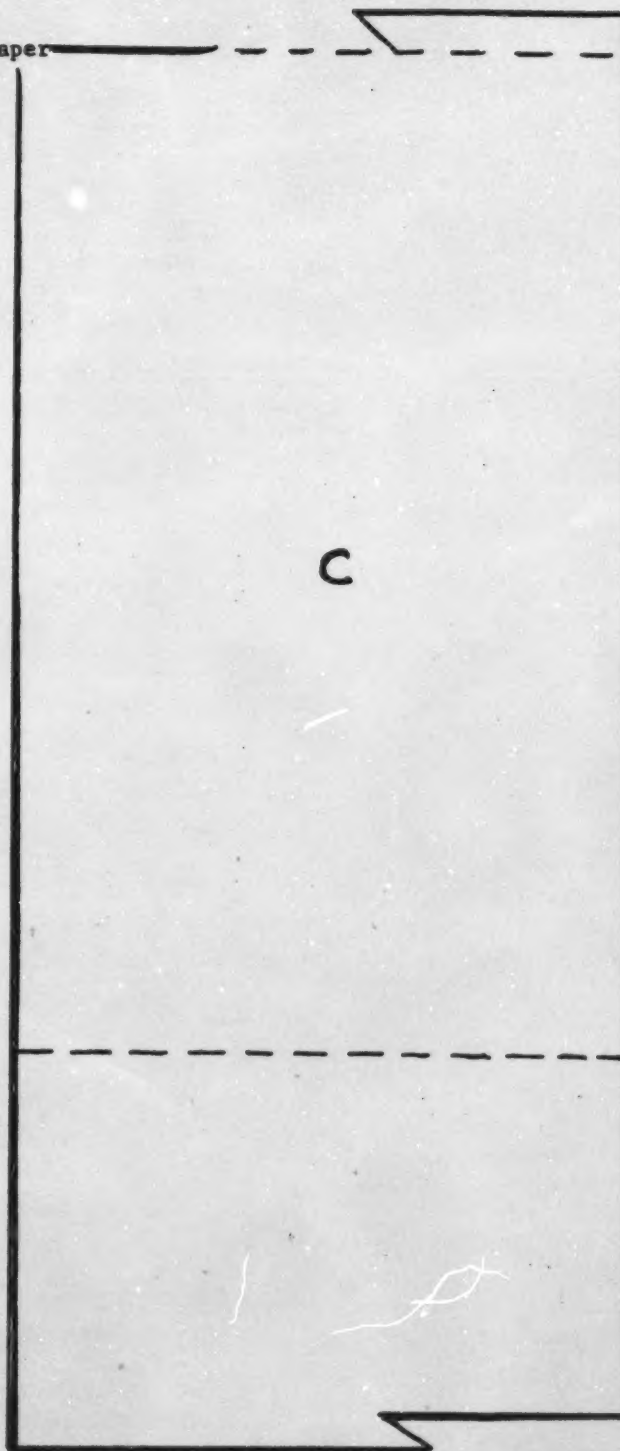
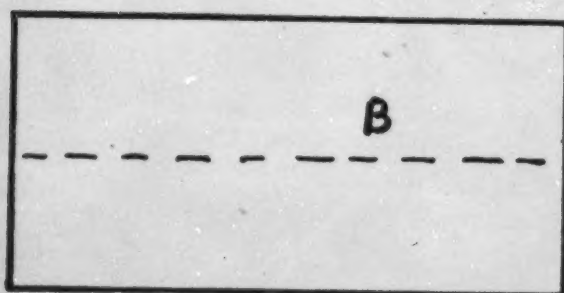
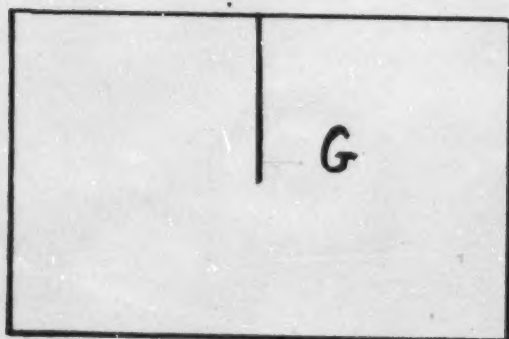
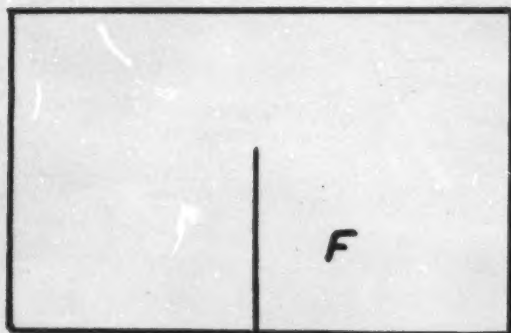
Building with triangles—

- d. Assemble part E as shown in the first drawing to your right. Push on it. Is it strong? Now construct F and G as shown in the second drawing. Is the box any stronger? This way of making a box stronger is called "triangulation." The diagonal braces you have added keep the corners of the box from collapsing. The triangle is a strong shape. That is why we can see triangles in roofs, bridges and some buildings.
- e. These are some of the basic ways of building. If you can think of some structures (buildings, bridges, radio towers) in your neighborhood which are built in each of these ways, list them and share that list with other class members.

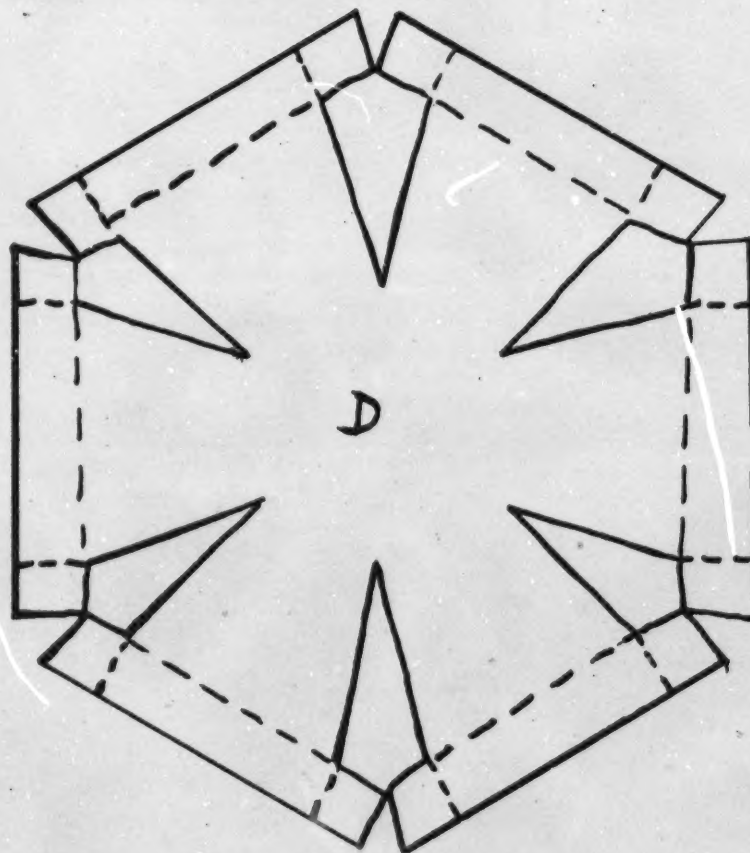
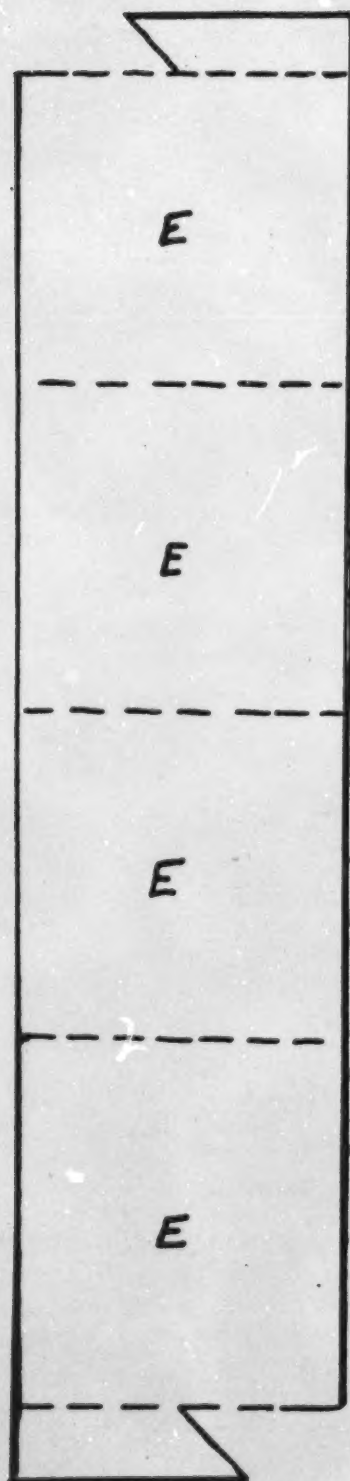


TRIANGULATION

Use these shapes to cut construction paper
components for activity 5.



Use these shapes to cut construction
paper components for activity 5.



6. THE CREATED ENVIRONMENT

"Environment" means surroundings—all the things in our world which affect our lives.

Our "created environment" is made up of the many different kinds of places and buildings which are built to serve us and provide for our needs, from the rooms we sleep or eat in to the roads we travel. It includes our homes and the store on the corner, our parks, our neighborhood, and our town or city.

Every place you can think of built by people for their use is a part of the created environment.

What about your environment—the part of the created environment which means something special to you? List four or five places that you think are important and explain the purpose or use of each.

Describe one of these places by drawing it.

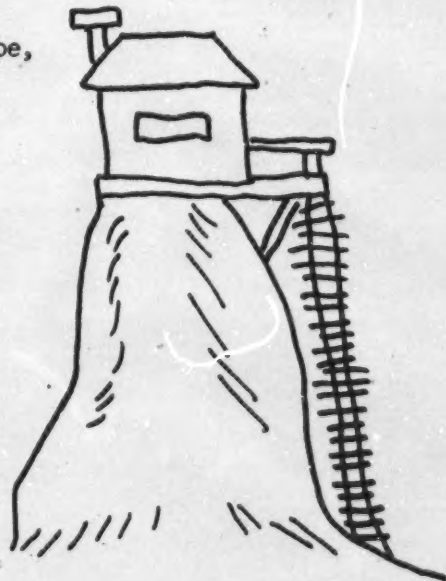
7. A HOUSE ON A HILL

The "site" (the piece of ground you build upon) often limits the way you build. Think of a site at the seashore: the possibility of floods, even once every ten years, means that the house may have to be built on stilts.

Think of the requirements of building a house on a steep, rocky hillside. You might design a building made up of many different levels which could be entered from the low side and the high side as well. But you would also want to remember that the building couldn't just rest on the earth—it would have to be tied to the ground to keep it from slipping downhill!

Design a house to be built on a steep slope, perhaps looking toward the ocean (your drawing will show the hill in profile.) You can do better than this drawing!

- a. Draw a house on a hillside. You can cut into the hill if you want. Where would the front door be? Show it with an arrow.
- b. What are some of the things that made this house different from a house built on a desert? Be prepared to show your house to members of your class and explain it to them.



8. MAKE A DESIGN SCRAPBOOK

Materials: Magazines such as House Beautiful, Home and Garden, Sunset, Home Magazine (Los Angeles Times) Better Homes and Gardens, and many others with structures of architectural interest in them

Construction paper
Scissors
Rubber cement
Pencil

It's not always easy to find buildings you think are interesting and well designed in your immediate area, but certain magazines specialize in presenting new and exciting designs in buildings to their readers.

Cut out at least five to six structures you think have architectural merit. Make a small scrapbook of these pictures and next to each of them try to explain why you think it is deserving to be in your scrapbook. If you find a structure you particularly dislike, include that also and tell your reasons for not approving it.

9. DO YOU WANT TO BE AN ARCHITECT?

Do you want to be an architect? If you do, see how many of the following statements you can answer with a "yes."

- a. I am able to handle pressure.
- b. I work well under pressure.
- c. Solving problems is easy.
- d. I am interested in people and like to meet new people.
- e. I get along well with all kinds of people.
- f. Making decisions is easy for me.
- g. I don't mind accepting responsibility.
- h. When I have an idea it is easy for me to communicate it to other people.
- i. I pay attention to details.
- j. I am willing to work long hours if necessary.
- k. I would be willing to spend eight years training in order to get an architect's license.
- l. I can draw well.
- m. I have a good feeling for composition and a good sense of scale.

- n. I am artistic.
- o. I can master technical problems.
- p. I am pretty good at business management.
- q. I am concerned about the environment.
- r. I have good vision (glasses are OK) and color perception.
- s. In school, I like mathematics and art.
- t. I earned good grades in drafting.

10. POST TEST

Take the written post test to find out how much you have learned during this unit Careers in Architecture.

CAREERS IN ARCHITECTURE
(Pretest and Post Test)

1. What training is required for a person to become an architect?
2. Are any tests or licenses required to practice architecture?
3. Are all buildings designed by architects?
4. How does the climate affect the type of architecture used?
5. Are there certain high school courses one should take to prepare himself/herself for a career in architecture?
6. Do you have to be good in mathematics or mechanical drawing to be an architect?
7. Name a local building that pleases you or one that displeases you. Why?
8. Do architects just design the outsides of buildings?
9. What are the job opportunities for architects in the '70's?
10. Would you have an architect design your house if you could afford it?